A Thresholded Cherenkov Detector for ICF Diagnostics. M. J. MORAN, Target Area Technoligies, Lawrence Livermore National Laboratory. As the (D,T) fusion neutron yields of ICF experiments increase beyond 10^{13}, high-bandwidth γ-ray techniques become capable of recording the fusion reaction history. Measurements based on the 16.7-eV (D,T) fusior γ ray have the advantage of nearly unlimited bandwidth, but they suffer in signal amplitude because of the small branching ratio ($\approx 5\times10^{-3}$) for the γ-ray emission. High efficiency Cherenlov detectors are capable of measuring the reaction history of present ICF experiments, but with poor energy discrimination and limited bandwidth. As ICF yields increase, these detectors can be modified to provide higher bandwidth and improved energy discrimination. Ultimately, they should be capable of remote measurement of details of the (D,T) fusion burn history in high-yield ICF experiments. This work was performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under Contract number W-7405-ENG-48.

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